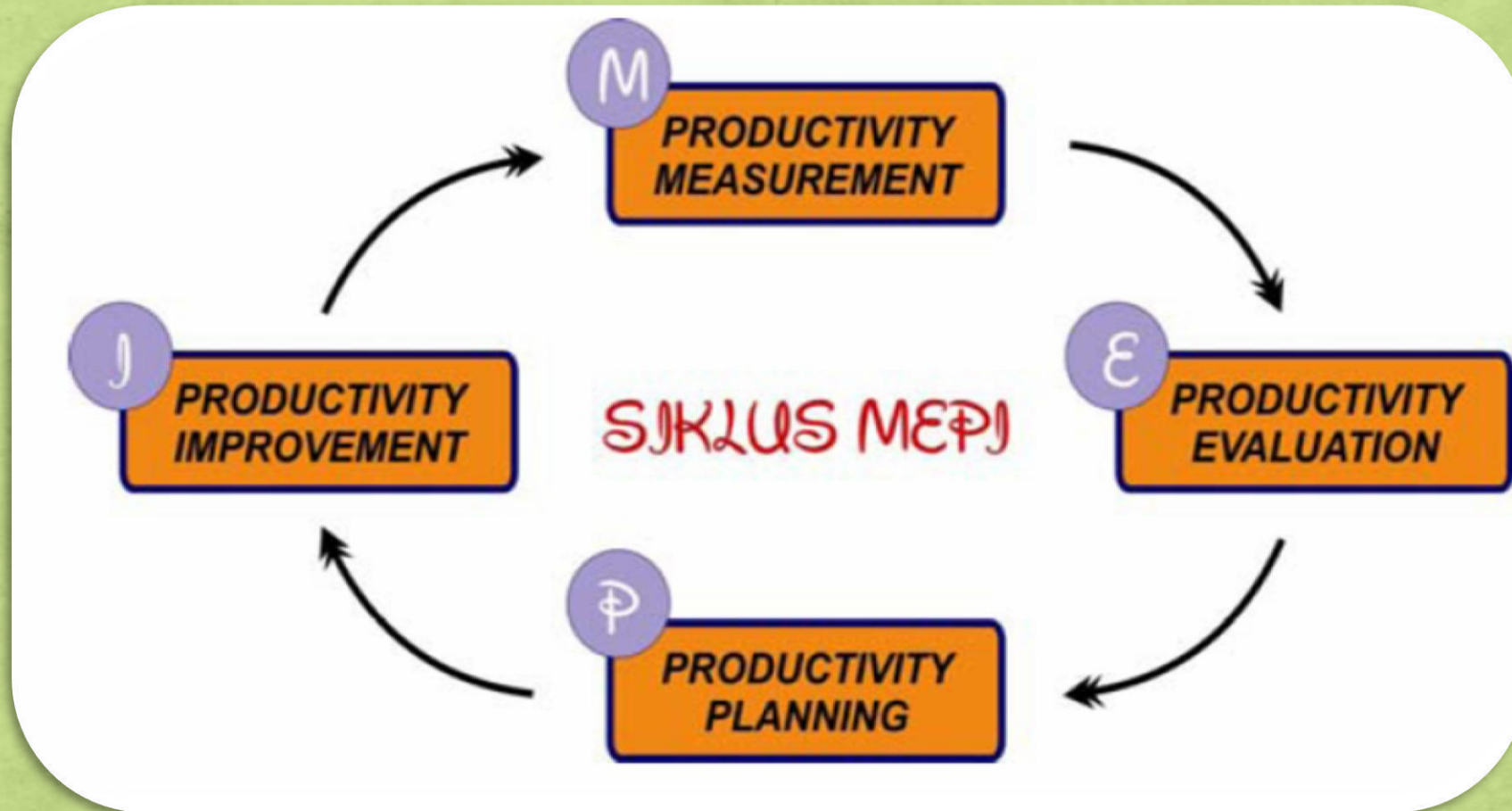


#5 Ensuring Productivity

Dewi Hardiningtyas, ST., MT., MBA.

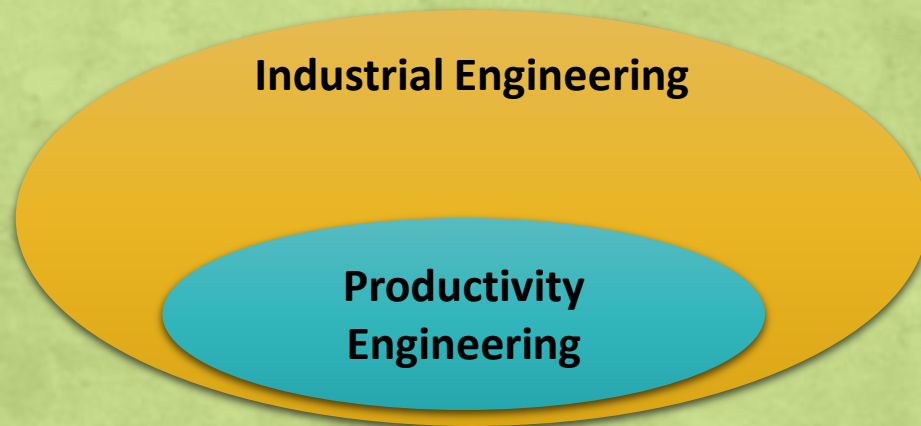
Industrial Engineering Department, University of Brawijaya



(Sumanth, 1979)

Productivity Cycle : MEPI

Productivity Engineering



- **Productivity Engineering** is concerned with the design, development, and maintenance of productivity measurement, evaluation, planning, and improvement systems in manufacturing and service organizations.
- The role of **productivity engineers** is to maintain and monitor the productivity systems, while **industrial engineers** are concerned with the broader aspects of industrial engineering, such as the design and installation of operational systems.

Productivity Management

- ***Productivity Management*** is a formal management process involving **all levels of management and employees** with the ultimate objective of reducing **the cost** of the manufacturing, distributing, and selling of a product or service through an integration of the four phases of the productivity cycle (**MEPI**).



Productivity Measurement



International

National

Industrial

Company

International Productivity Measurement

OEEC (Organizations for European Economic Cooperation)

- GNP per capita
- GNP per person employed

US Bureau of Labor Statistics

- GDP per capita
- GDP per employed civilian

ICP (International Comparisons Project)

- Total GDP at market prices
- GDP per capita at market prices

National Productivity Measurement

Labor Productivity Index

$$\frac{\text{Output}}{\text{Weighted man-hour}}$$

Capital Productivity Index

$$\frac{\text{Output}}{\text{Capital Input}}$$

Total Labor and Capital Productivity

$$\frac{\text{Output}}{\text{Labor + capital}}$$

(NBER measures by Kendrick)

Industrial Productivity Measurement

The benefits are :

→ Economic indicators

→ Company performance analyses

→ Manpower analyses

→ Firm and trade forecasts



Manufacturing

Services

Government

Construction

Energy

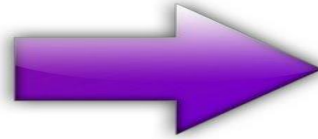
Retail Trade

Productivity Evaluation

The three possible cases :



Increase

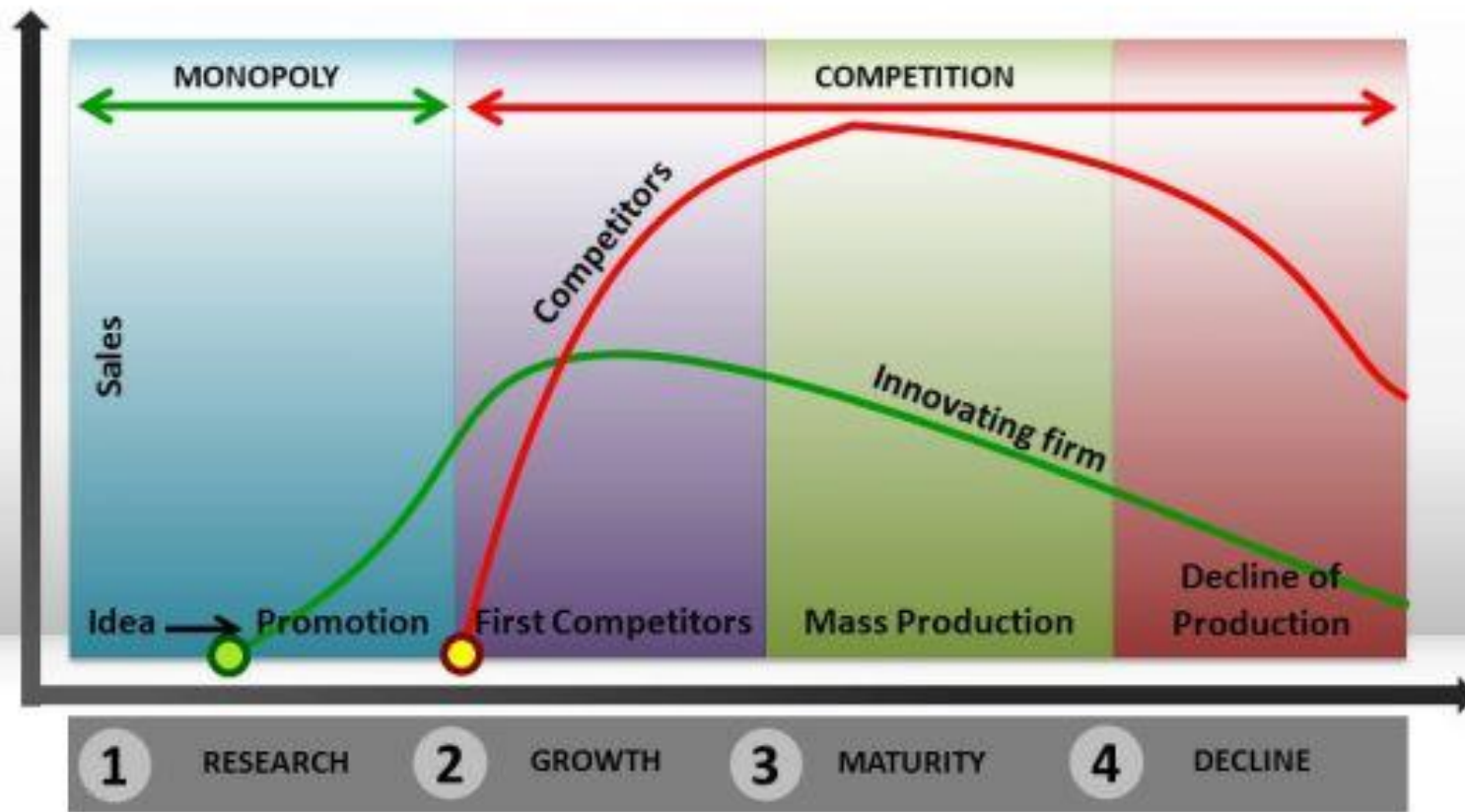


Constant



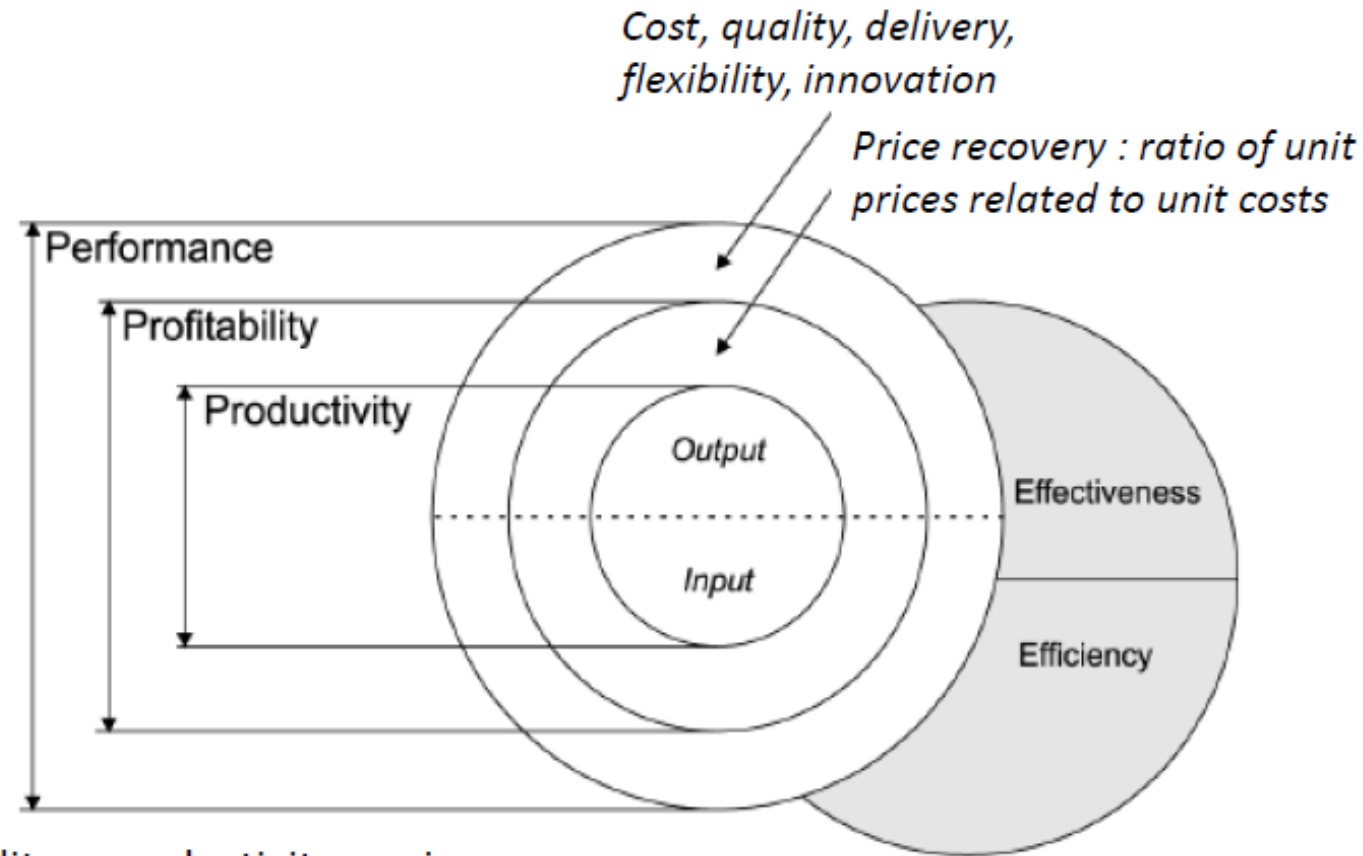
Decrease

Productivity Planning



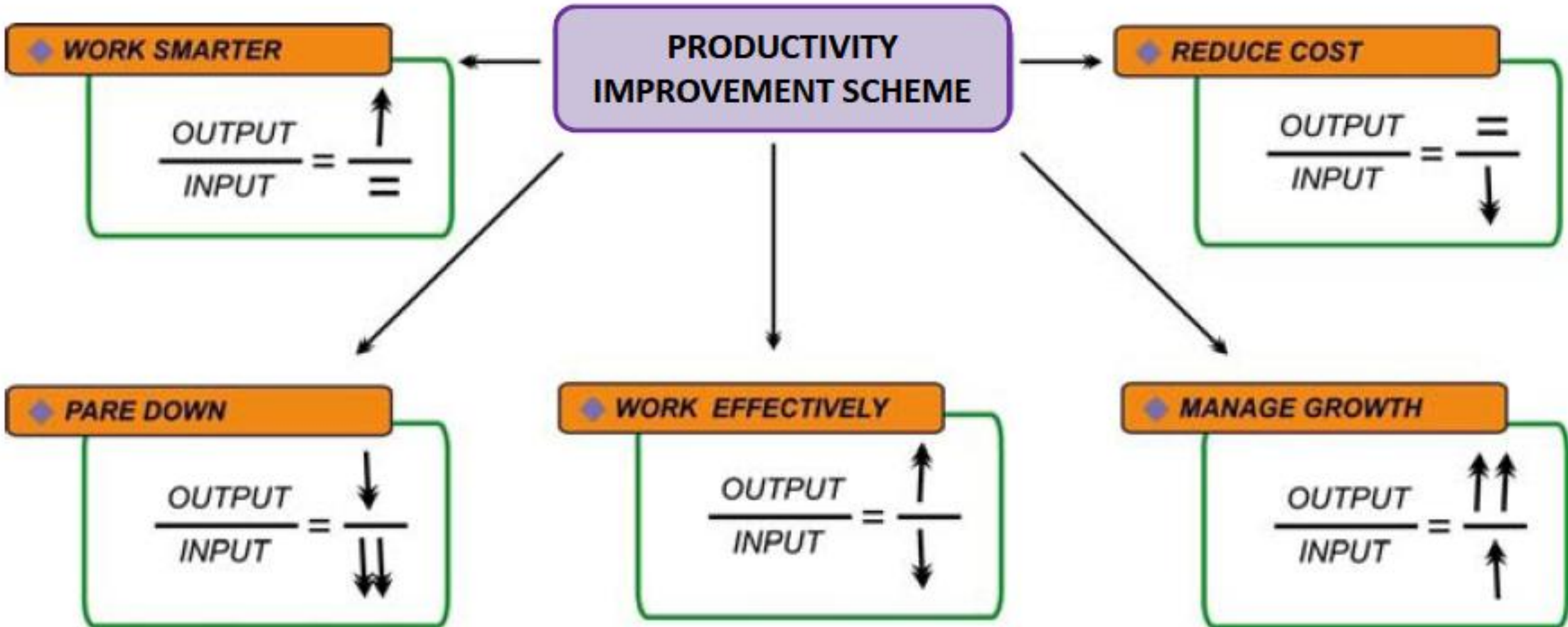
**Short Term
Vs
Long Term**

The Triple P Model



- $\text{profitability} = \text{productivity} + \text{price recovery}$
- Performance is the umbrella term of excellence and includes profitability and productivity as well as other non-cost factors such as quality, delivery, flexibility, and innovation

Productivity Improvement Scheme



Productivity Approaches

- Goodwin's Approach
- Sutermeister's Model
- Hershauer and Ruch's Model
- Crandall and Wooton Strategies
- Stewart Strategy
- Aggarwal's Approach

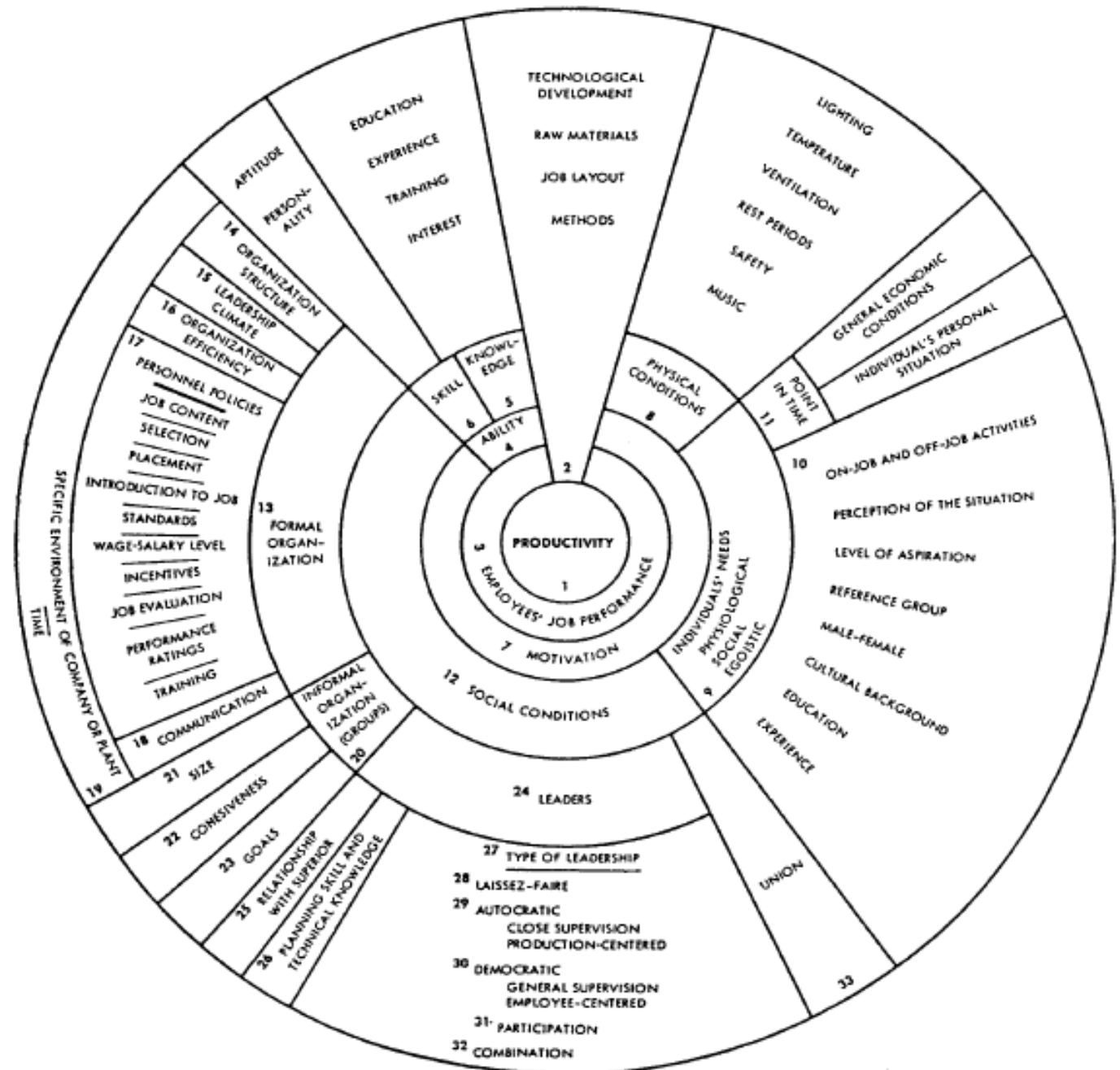
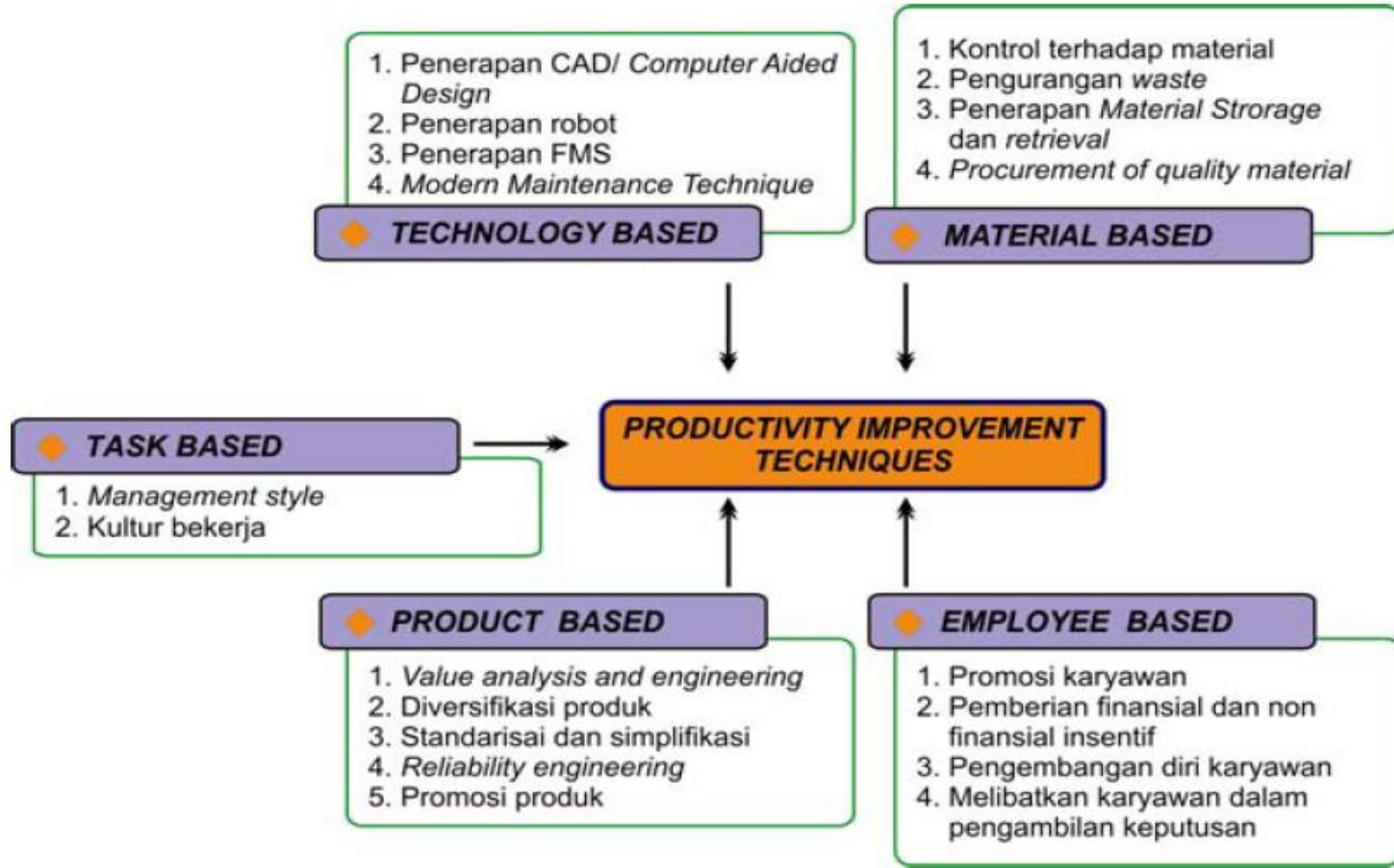


Fig. 3—Sutermeister's productivity circle²

Productivity Improvement Strategy



Constraints on Productivity

- Management limitations
- Employee attitudes and skills
- Government regulations
- Union rules



Employee Fears About Productivity Improvement

- Many employees believe that cost reductions can lead to less overtime pay, more difficult work, and even layoffs.
- Supervisors must respond to employee fears
 - Be prepared with information
 - Present the information to the employees
 - Allow employees to ask questions

Have an enjoy study
and see you next week...

Thank you...